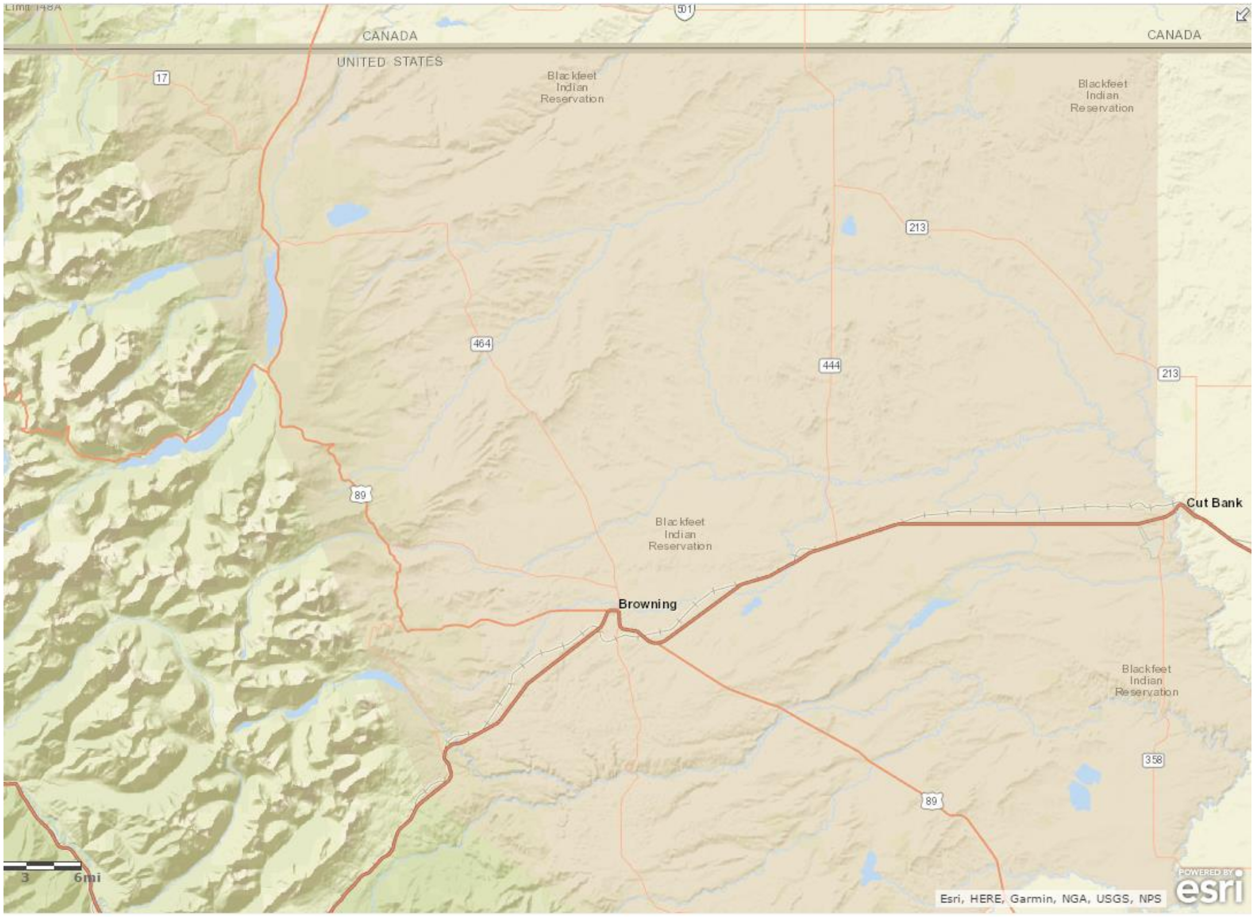
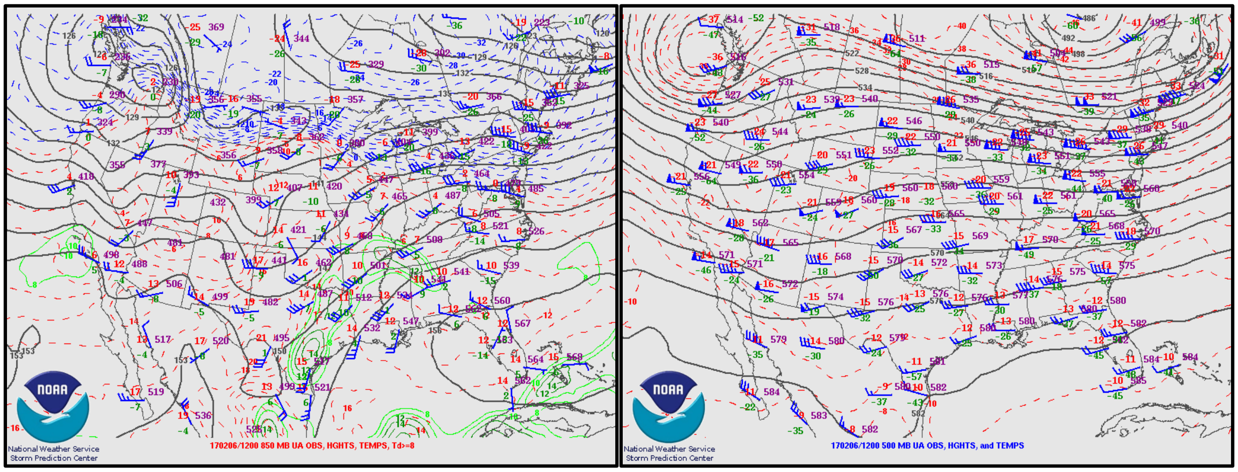
Heavy snow falls over Montana’s Northern Rocky Mountain Front

NOAA’s National Weather Service Great Falls, MT

Several feet of snow fell over the Northern Rocky Mountain Front as ample moisture flowing in from the west combined with a weather disturbance and upslope flow. This area and areas west of the divide reported large snow totals. As many as six feet of snow was reported. Many locations reported snowfall totals last seen for at least 17 years ago, in early June 2002. In June 2002, three to four feet of snow fell over the lower elevations of the Rocky Mountain Front and more than four feet fell over the higher elevations.



Map above shows main area of discussion. The area from Browning west to the continental divide is referred to in this discussion.



The images above show the upper air patterns at 850 millibars (about 5000 feet above sea level - left) and 500 millibars (about 18000 feet above sea level – right).

While this storm (Feb 3-7, 2017) only set a few snowfall records, it was still noteworthy. The following table summarized the larger reported snow amounts, along with the water-equivalent (when available).

Snowfall Amount (inches) / water equivalent	**Location**	**Time period**
64 / E5.00”	St Mary COOP	4-day Feb 3-7, 2017
63 / 5.20”	Many Glacier SNOTEL	4-day Feb 3-7
62.5	East Glacier COOP	4-day Feb 3-7
60	Babb (unofficial)	3-day Feb 3-6
55	Teton Pass Ski Area (unofficial)	3-day Feb 3-6
51	East Glacier (unofficial)	3-day Feb 3-6
46 / 4.30”	Pike Creek SNOTEL	4-day Feb 3-7
41 / 4.00”	Badger Pass SNOTEL	4-day Feb 3-7
41 / 3.10”	Waldron SNOTEL	4-day Feb 3-7
38 / 4.30”	Mount Lockhart SNOTEL	4-day Feb 3-7
36	Browning (unofficial)	3-day Feb 3-6
36	Babb (unofficial)	3-day Feb 3-6
35 / 2.00”	Dupuyer Creek SNOTEL	4-day Feb 3-7
24 / 2.10”	Wood Creek SNOTEL	4-day Feb 3-7
22	Dupuyer 13W (unofficial)	4-day Feb 3-7
10.5 / 0.86”	Cut Bank CoCoRaHs	4-day Feb 3-7

Values in bold are new records.

St. Mary reported 64-inches of snow over the 4-day period ending February 7. This exceeds their previous 4-day extreme of 43-inches set in November 1990. St Mary’s records began in 1981.

Babb reported an unofficial total of 60-inches over the 4-day period. There were unofficial reports of even higher amounts west of Babb, towards Many Glacier. Official snowfall records from Babb (1948-1994) show that the most snow reported over a 4-day period was 24-inches in March 1954.

East Glacier reported 26-inches during the 24-hour period that ended at 8 am on February 6. Two days on two earlier years exceeded this amount. On November 17, 1978 29-inches was observed and on October 29, 1951, 28 inches fell. For the most recent storm, over a two day period that ended on February 6, 39.5-inches of snow fell. This is the second highest two-day total recorded at East Glacier. The highest was a two-day amount of 42-inches on February 16-17, 1986. Over a 4-day period in February 1986, 55-inches of snow fell, while a 3-day snowfall totaled 52-inches. This year, over a 3-day period, 49.5-inches was measured by the cooperative observer, while over a 4-day period they collected 62.5-inches. East Glacier's records began in 1949.

The automated SNOTEL station at **Many Glacier** reported 63-inches over a 4-day period ending on February 7. Over 3-days 55-inches were reported. Both of these far exceed the previous 3-day record of 34-inches over a 3-day period and 36-inches over a 4-day period in November 2010. Twenty-five inches of snow fell in a 24-hour period ending at 9 am February 6, 2017. This exceeds the previous 24-hour record of 18.9-inches on January 11, 1969. The water-equivalent of the snow for this storm was 5.2-inches. While this is a large amount, there have been several other 4-day totals in the record that have exceeded 6-inches. Many Glacier's records began in 1967.

Pike Creek SNOTEL, near Marias Pass, reported 46-inches of snow (and water equivalent of 4.3-inches) over the 4-day period ending February 7. Again, while high, there have been several other 4-day totals in the historical record exceeding this amount. Nearby Summit holds the snowfall records for Montana for a 4-, 5- and 6-day period. These values are 66-inches, 75-inches and 77-inches respectively, all set in January 1972. Pike Creek's records began in 1988.

Browning reported an unofficial amount of 36-inches. The official records show that 36-inches also fell over a 3-day period ending September 26, 1908. Browning's official records are from 1894-1996.

Badger Pass SNOTEL , Dupuyer Creek SNOTEL and Pike Creek SNOTEL all reported larger multi-day snowfall amounts in June 2002. These amounts were 42-inches, 30-inches and 47-inches, respectively.

The following photos are courtesy of Michael Tucker in East Glacier Park, MT. These images are from around 11 am February 6, 2017. At this time there were 51-inches of snow on the ground.